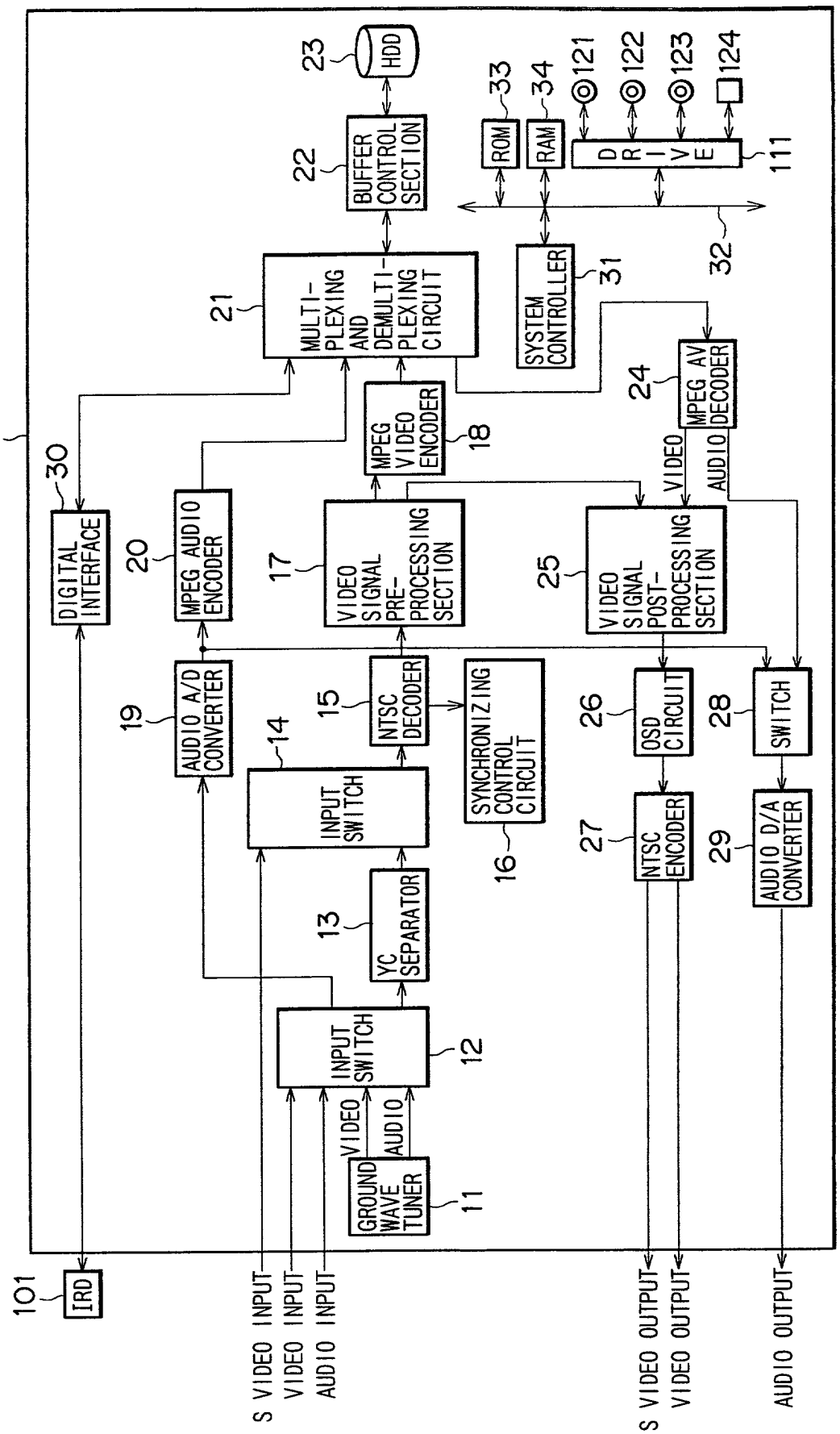
FIG. 1


1
101
IRD
30
DIGITAL INTERFACE
S VIDEO INPUT
VIDEO INPUT
AUDIO INPUT
GROUND WAVE TUNER
11
VIDEO
AUDIO
INPUT SWITCH
12
YC SEPARATOR
13
INPUT SWITCH
14
NTSC DECODER
15
SYNCHRONIZING CONTROL CIRCUIT
16
AUDIO A/D CONVERTER
19
MPEG AUDIO ENCODER
20
VIDEO SIGNAL PRE-PROCESSING SECTION
17
MPEG VIDEO ENCODER
18
MULTI-PLEXING AND DEMULTI-PLEXING CIRCUIT
21
BUFFER CONTROL SECTION
22
HDD
23
SYSTEM CONTROLLER
31
ROM
33
RAM
34
DRIVE
111
121
122
123
124
32
MPEG AV DECODER
24
VIDEO
AUDIO
VIDEO SIGNAL POST-PROCESSING SECTION
25
OSD CIRCUIT
26
NTSC ENCODER
27
SWITCH
28
AUDIO D/A CONVERTER
29
S VIDEO OUTPUT
VIDEO OUTPUT
AUDIO OUTPUT

F I G. 2

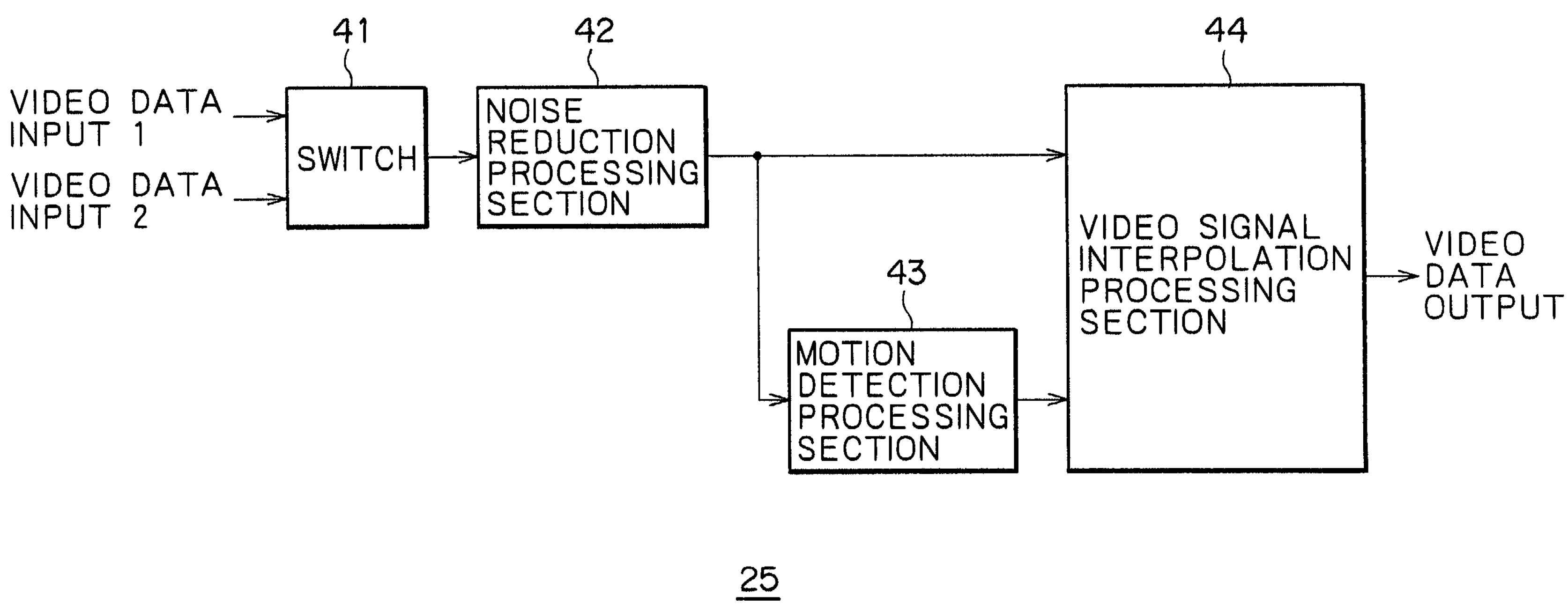
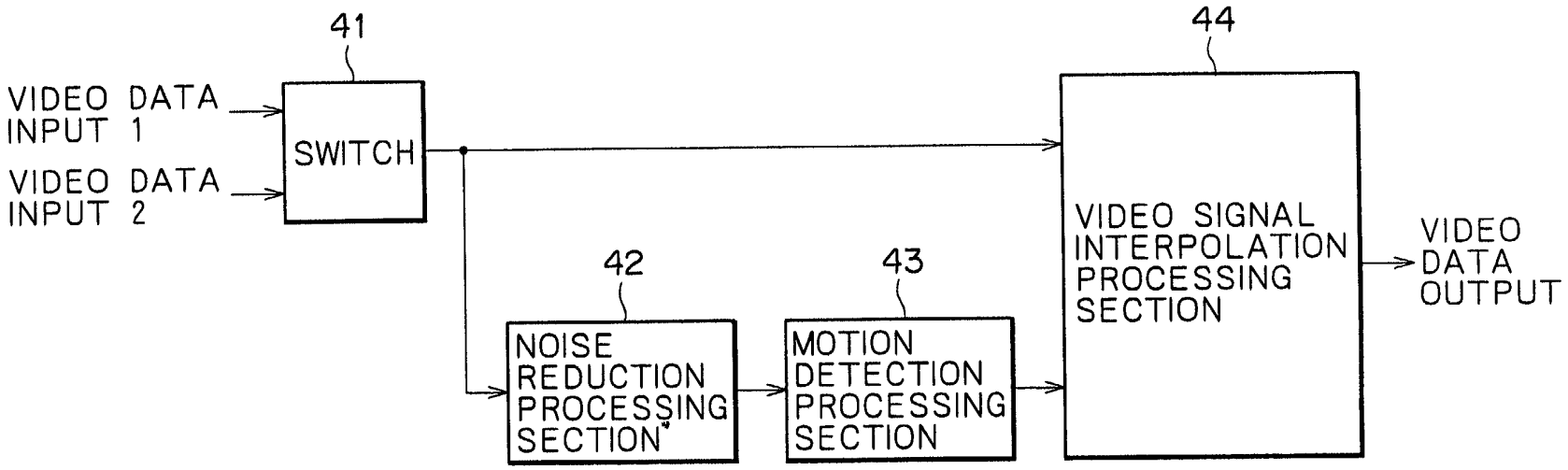
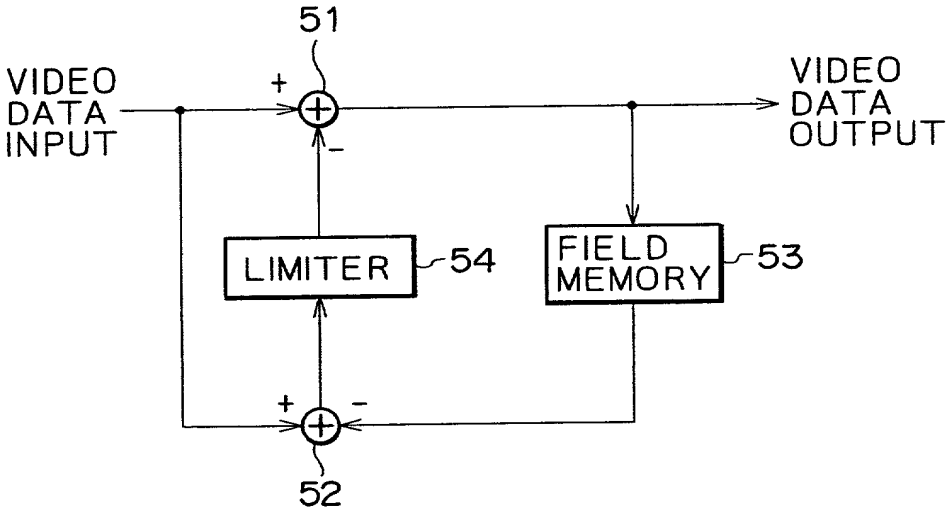

41
42
43
44
VIDEO DATA INPUT 1
VIDEO DATA INPUT 2
SWITCH
NOISE REDUCTION PROCESSING SECTION
MOTION DETECTION PROCESSING SECTION
VIDEO SIGNAL INTERPOLATION PROCESSING SECTION
VIDEO DATA OUTPUT
25

FIG. 3


41
44
VIDEO DATA INPUT 1
VIDEO DATA INPUT 2
SWITCH
VIDEO SIGNAL INTERPOLATION PROCESSING SECTION
VIDEO DATA OUTPUT
42
43
NOISE REDUCTION PROCESSING SECTION
MOTION DETECTION PROCESSING SECTION

25

FIG. 4


51
VIDEO
DATA
INPUT
+
−
VIDEO
DATA
OUTPUT
LIMITER
54
FIELD
MEMORY
53
+
−
52

42

FIG. 5

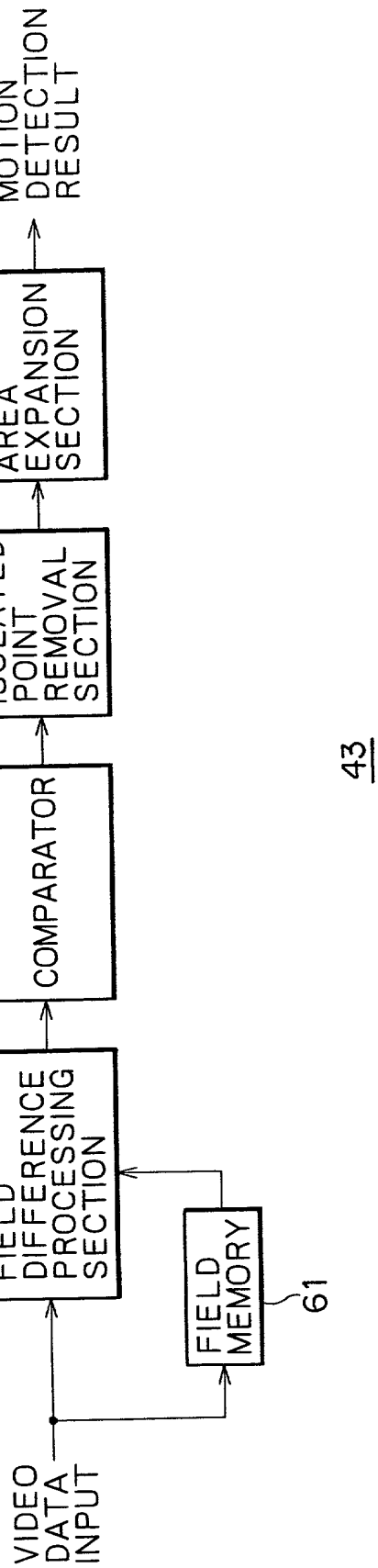

VIDEO DATA INPUT
FIELD MEMORY
61
62
FIELD DIFFERENCE PROCESSING SECTION
63
COMPARATOR
64
ISOLATED POINT REMOVAL SECTION
65
AREA EXPANSION SECTION
MOTION DETECTION RESULT
43

FIG.6

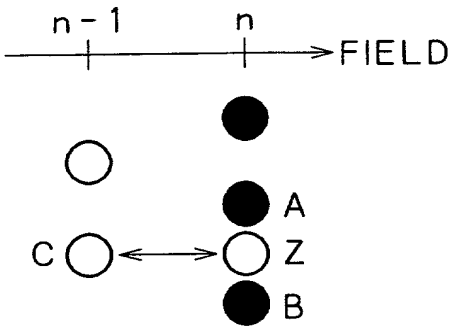

n-1
n
FIELD
A
C
Z
B

FIG.7

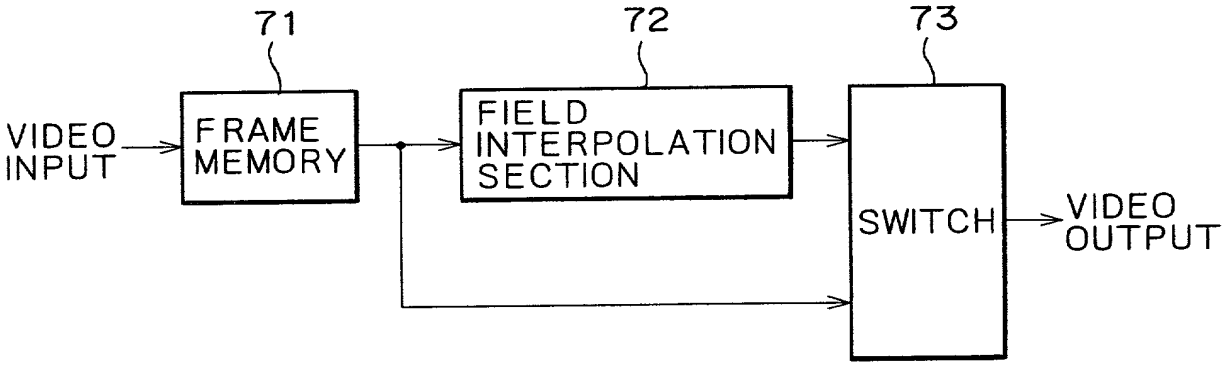

71
72
73
VIDEO INPUT
FRAME MEMORY
FIELD INTERPOLATION SECTION
SWITCH
VIDEO OUTPUT

FIG. 8

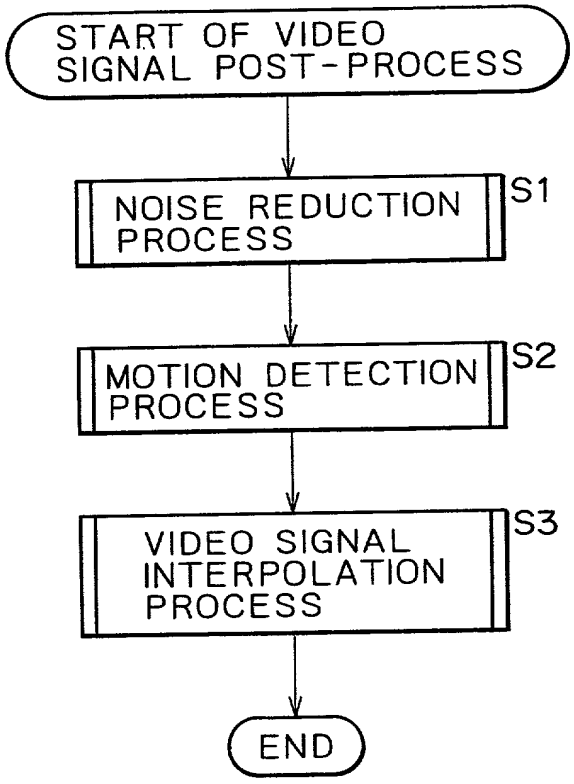

START OF VIDEO SIGNAL POST-PROCESS
NOISE REDUCTION PROCESS
S1
MOTION DETECTION PROCESS
S2
VIDEO SIGNAL INTERPOLATION PROCESS
S3
END

FIG.9

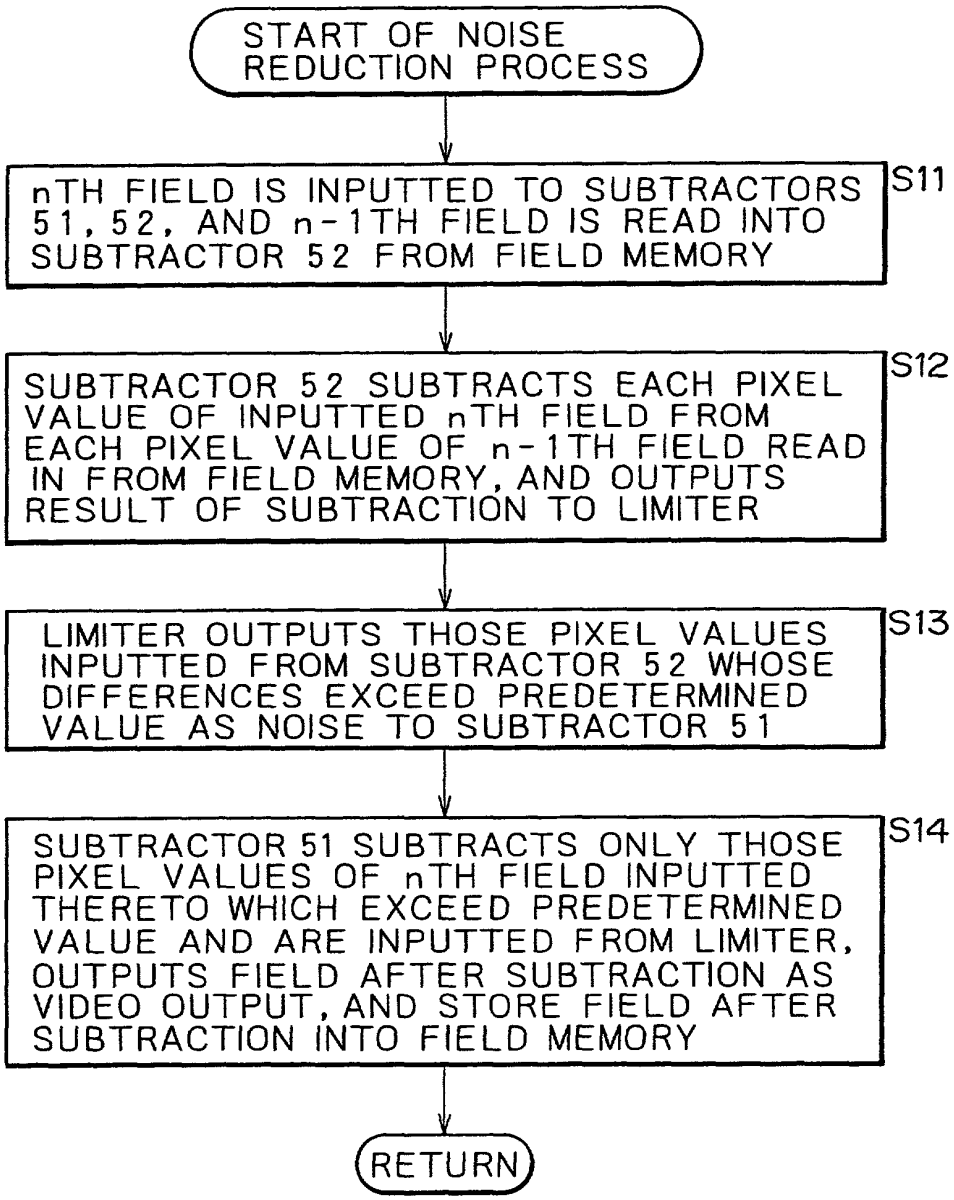

START OF NOISE REDUCTION PROCESS
nTH FIELD IS INPUTTED TO SUBTRACTORS 51, 52, AND n-1TH FIELD IS READ INTO SUBTRACTOR 52 FROM FIELD MEMORY
S11
SUBTRACTOR 52 SUBTRACTS EACH PIXEL VALUE OF INPUTTED nTH FIELD FROM EACH PIXEL VALUE OF n-1TH FIELD READ IN FROM FIELD MEMORY, AND OUTPUTS RESULT OF SUBTRACTION TO LIMITER
S12
LIMITER OUTPUTS THOSE PIXEL VALUES INPUTTED FROM SUBTRACTOR 52 WHOSE DIFFERENCES EXCEED PREDETERMINED VALUE AS NOISE TO SUBTRACTOR 51
S13
SUBTRACTOR 51 SUBTRACTS ONLY THOSE PIXEL VALUES OF nTH FIELD INPUTTED THERETO WHICH EXCEED PREDETERMINED VALUE AND ARE INPUTTED FROM LIMITER, OUTPUTS FIELD AFTER SUBTRACTION AS VIDEO OUTPUT, AND STORE FIELD AFTER SUBTRACTION INTO FIELD MEMORY
S14
RETURN

FIG.10

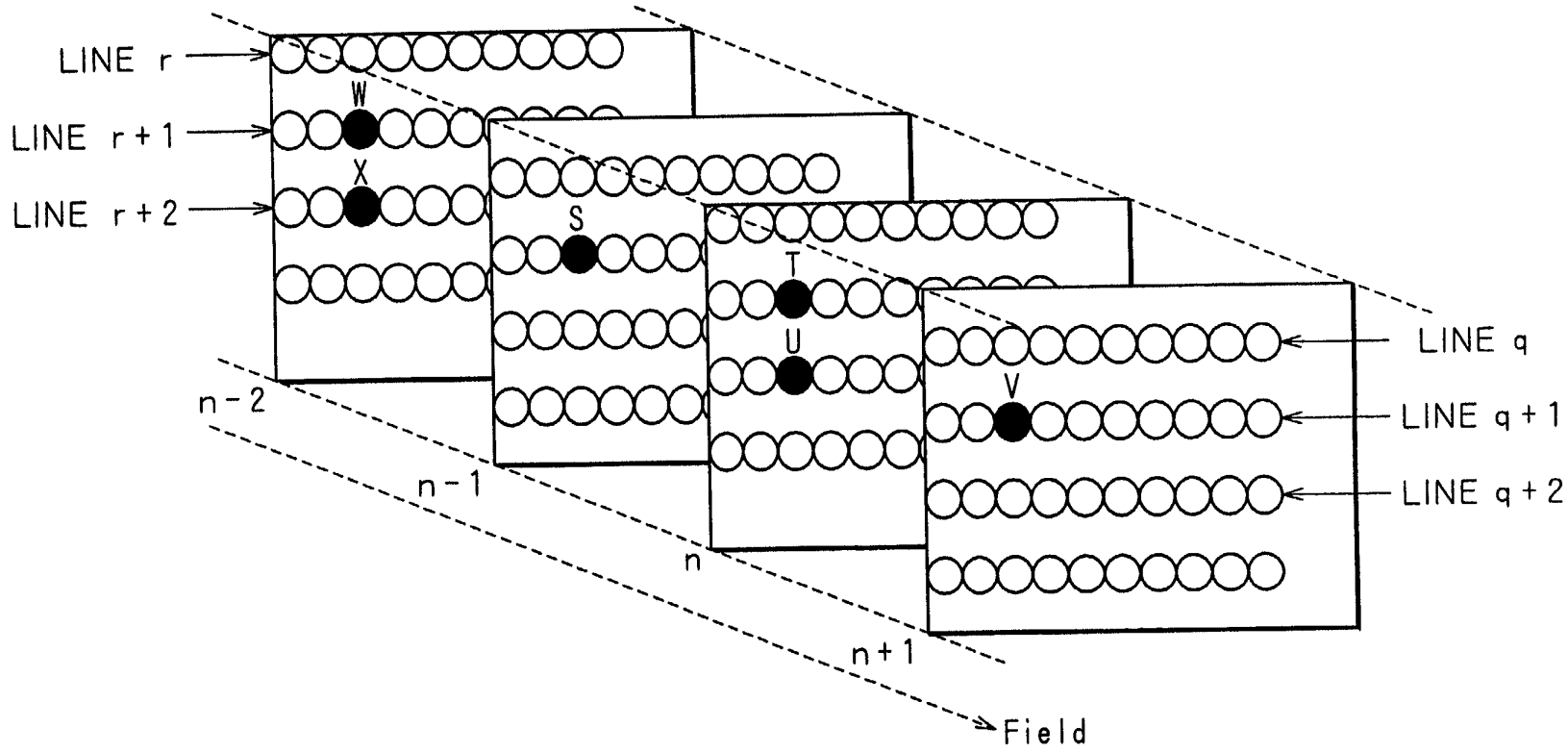

LINE r
LINE r+1
LINE r+2
W
X
S
T
U
V
LINE q
LINE q+1
LINE q+2
n-2
n-1
n
n+1
Field

FIG.11

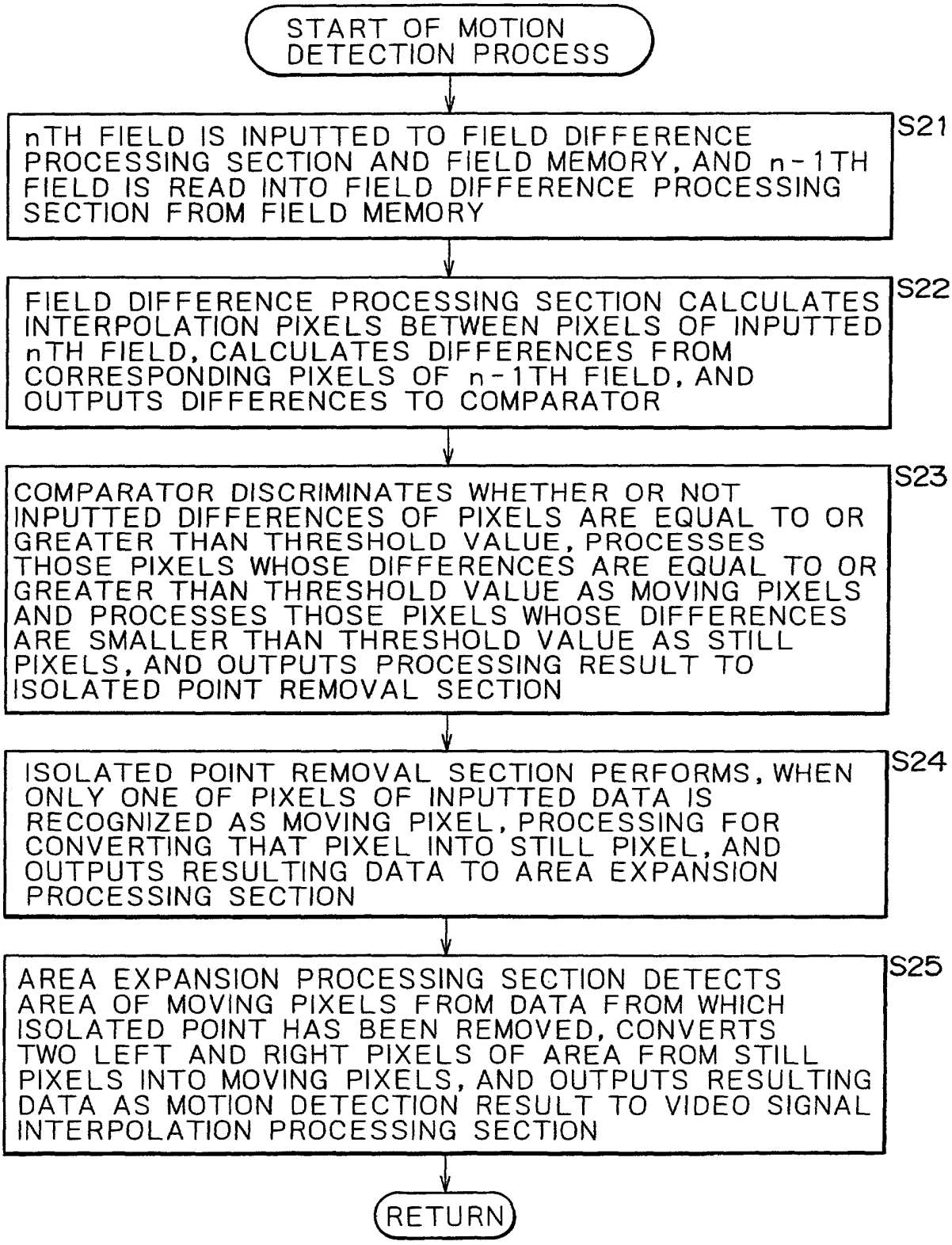

START OF MOTION DETECTION PROCESS
nTH FIELD IS INPUTTED TO FIELD DIFFERENCE PROCESSING SECTION AND FIELD MEMORY, AND n-1TH FIELD IS READ INTO FIELD DIFFERENCE PROCESSING SECTION FROM FIELD MEMORY
S21
FIELD DIFFERENCE PROCESSING SECTION CALCULATES INTERPOLATION PIXELS BETWEEN PIXELS OF INPUTTED nTH FIELD, CALCULATES DIFFERENCES FROM CORRESPONDING PIXELS OF n-1TH FIELD, AND OUTPUTS DIFFERENCES TO COMPARATOR
S22
COMPARATOR DISCRIMINATES WHETHER OR NOT INPUTTED DIFFERENCES OF PIXELS ARE EQUAL TO OR GREATER THAN THRESHOLD VALUE, PROCESSES THOSE PIXELS WHOSE DIFFERENCES ARE EQUAL TO OR GREATER THAN THRESHOLD VALUE AS MOVING PIXELS AND PROCESSES THOSE PIXELS WHOSE DIFFERENCES ARE SMALLER THAN THRESHOLD VALUE AS STILL PIXELS, AND OUTPUTS PROCESSING RESULT TO ISOLATED POINT REMOVAL SECTION
S23
ISOLATED POINT REMOVAL SECTION PERFORMS, WHEN ONLY ONE OF PIXELS OF INPUTTED DATA IS RECOGNIZED AS MOVING PIXEL, PROCESSING FOR CONVERTING THAT PIXEL INTO STILL PIXEL, AND OUTPUTS RESULTING DATA TO AREA EXPANSION PROCESSING SECTION
S24
AREA EXPANSION PROCESSING SECTION DETECTS AREA OF MOVING PIXELS FROM DATA FROM WHICH ISOLATED POINT HAS BEEN REMOVED, CONVERTS TWO LEFT AND RIGHT PIXELS OF AREA FROM STILL PIXELS INTO MOVING PIXELS, AND OUTPUTS RESULTING DATA AS MOTION DETECTION RESULT TO VIDEO SIGNAL INTERPOLATION PROCESSING SECTION
S25
RETURN

FIG.12

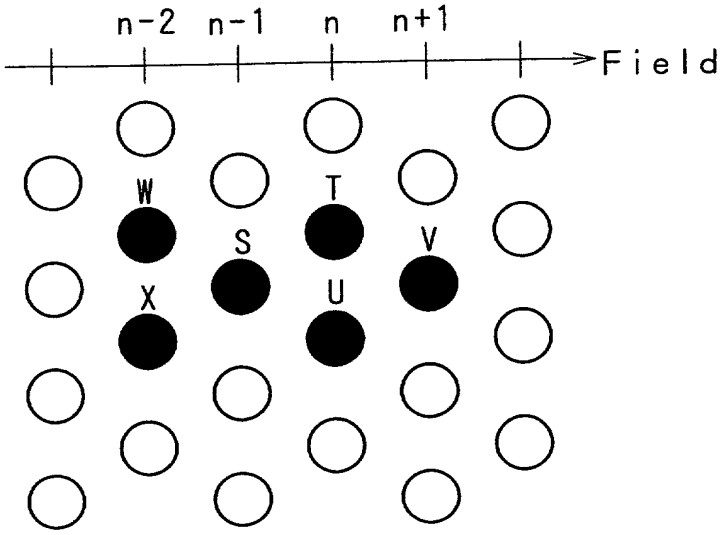


FIG.13

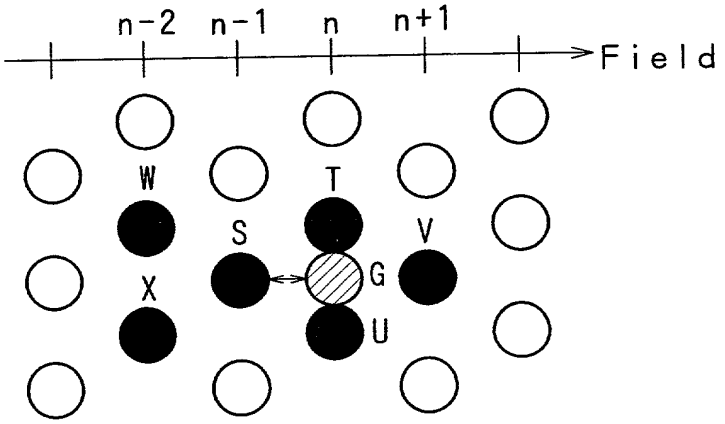


FIG.14A

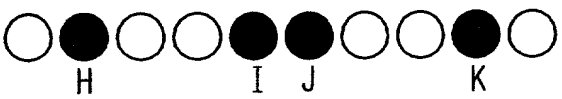


FIG.14B

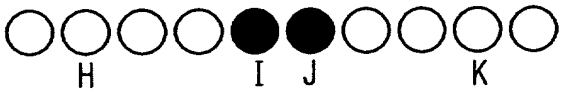


FIG.15A

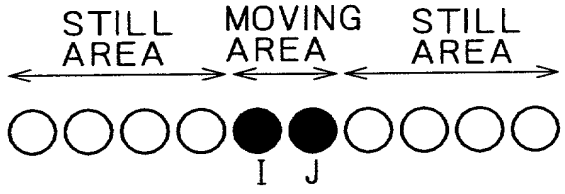


FIG.15B

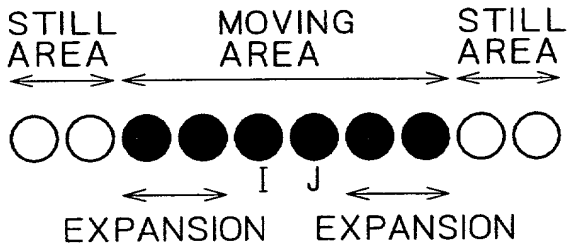
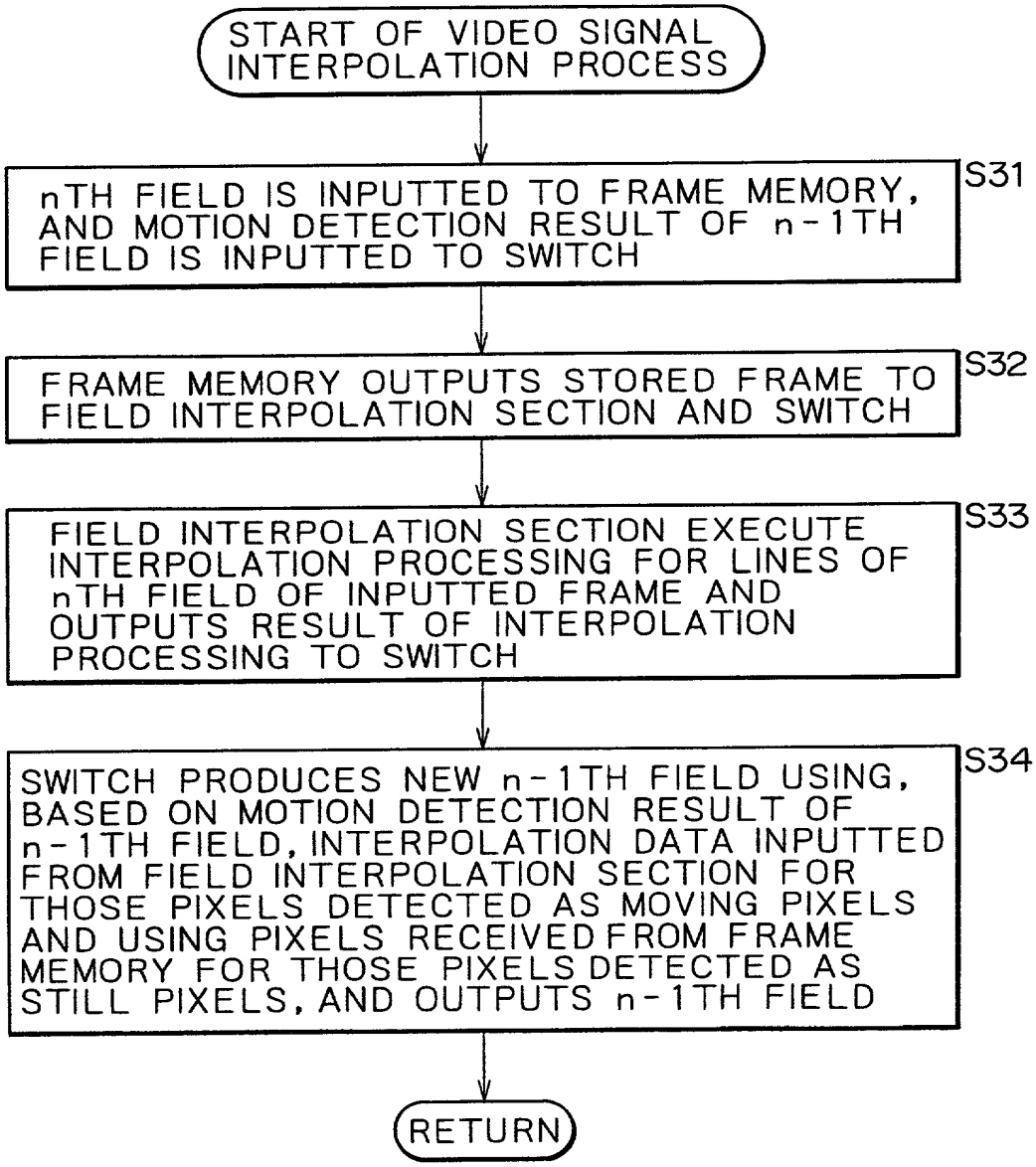


FIG.16


START OF VIDEO SIGNAL INTERPOLATION PROCESS
nTH FIELD IS INPUTTED TO FRAME MEMORY, AND MOTION DETECTION RESULT OF n-1TH FIELD IS INPUTTED TO SWITCH
S31
FRAME MEMORY OUTPUTS STORED FRAME TO FIELD INTERPOLATION SECTION AND SWITCH
S32
FIELD INTERPOLATION SECTION EXECUTE INTERPOLATION PROCESSING FOR LINES OF nTH FIELD OF INPUTTED FRAME AND OUTPUTS RESULT OF INTERPOLATION PROCESSING TO SWITCH
S33
SWITCH PRODUCES NEW n-1TH FIELD USING, BASED ON MOTION DETECTION RESULT OF n-1TH FIELD, INTERPOLATION DATA INPUTTED FROM FIELD INTERPOLATION SECTION FOR THOSE PIXELS DETECTED AS MOVING PIXELS AND USING PIXELS RECEIVED FROM FRAME MEMORY FOR THOSE PIXELS DETECTED AS STILL PIXELS, AND OUTPUTS n-1TH FIELD
S34
RETURN